

REMARKS

Reconsideration of the application is requested in view of the amendment to the claims and the remarks presented herein.

The claims in the application are claims 1 to 3 and 9 to 12, all other claims having been cancelled.

Claim 1 has been amended so line 1 and the last line are consistent in the term “refracting article”.

Claims 1 to 3 and 9 to 11 have been rejected under 35 USC 103 as being obvious over the Shimizu patent and claims 1 to 3 and 9 have been rejected under 35 USC 102 as being anticipated by the Takashima et al patent. The Examiner states that the Shimizu patent is directed to a process for producing a phenolic resin using a high molecular weight phenolic mixture left bisphenolic A production. The Examiner states that Takashima et al patent discloses the condensate of bisphenol A cleavage product to condensation with formaldehyde . The Examiner states that there is no showing of unexpected results and the disclosure is incomprehensible to preclude a reasonable search.

Applicants respectfully traverse these grounds of rejection since neither reference relates to Applicants’ invention which is directed to the preparation of refractory materials

with advantageous properties well spelled out in Applicants' disclosure to one skilled in the art. The undersigned had an interview with the Examiner on November 30, 2006 at which time the Examiner reviewed all of Applicants' arguments and fully understood the differences between the prior art and the present invention. However, the Examiner felt new issues were being presented at final as set forth in the advisory action of January 25, 2007 so the RCE was filed.

The claims now call for incorporating into the refractory materials which are well-known in the art to be materials such as magnesite, dolomite, bauxite or andalusite the mixture of the polycondensation product and at least one phenolic compound and then forming the refractory material.

The Takashima and Shimizu patents both relate not to the refractory field but to the use of a binder in the foundry industry. The sand is coated with the binder and they are building a shaped form. This form is destroyed when the hot steel contacts the form. The result is a new form made of steel. The function of the binder in the foundry industry is different from the binder in the refractory industry. The whole structure of binder/sand does not build a solid shape at high temperature – to the contrary, it is an intention that the structure is destroyed. Binders in the foundry do not have a high oxidation resistance and after the carbonization a high carbon yield normally. Therefore it was not obvious to use a binder produced by reacting a bisphenol residue with an aldehyde in an acid medium in the refractory industry.

The Examiner's attention is directed to the brochures filed with the amendment of June 6, 2005 for a discussion of refractory technology. Refractories are made from raw materials such as magnesia, dolomite, bauxite, corundum, silicon carbide, silicates and other mineral products, carbon in the form of graphite and phenolic resins as binder wherein the components are mixed at various temperature depending on the mixing process followed by a shaping step and then a curing and carbonization step. The process and the influence of the structure of the product is discussed in the brochure submitted with the amendment of June 6, 2005 and particularly page 35. One skilled in the art of refractory technology is not the same as one skilled in the art of phenolic resins which is what the Examiner has cited.

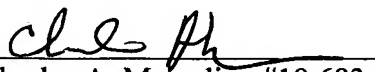
One skilled in the art of refractories would not obtain any information from the prior art cited by the Examiner to increase the carbonization grade of the refractory material. For Applicants' purposes, the resin binder must have a good yield of carbon so that the final refractory has a good durability. In the past, tar pitch was often used as a binder since it had a good carbonization grade but it was difficult to handle so other alternatives were looked for.

It was surprising that refractory products produced with the polycondensation products of the invention have, after the carbonization, a higher carbon yield. Attempts with the raw resin of the polycondensation product show that the carbon yield is comparable with other raw resin e.g. epoxy resins. But in combination with the further raw materials such as magnesia, dolomite, bauxite, corundum, silicon carbide, silicates or other mineral products as well as carbon in form of graphite, have obtained a high carbon

yield. Other resins do not show this phenomenon in combination with the further raw materials. The normal case was, if the raw resin has a bad carbonization yield, the final product has this also. Therefore, the high carbonization yield was surprising and accordingly, the durability of the mineral materials was increased. Furthermore, a higher oxidation resistance was obtained than with corresponding refractory products produced to prior art with phenol novolaks. The polycondensation products are surprisingly soluble in customary industrial solvents having a high boiling point. Therefore, the cited prior art has nothing to do with Applicants' invention and withdrawal of these grounds of rejection is requested.

In view of the above remarks, it is believed that the claims point out Applicants' patentable contribution and favorable reconsideration of the application is requested.

Respectfully submitted,
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